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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/091,596	03/07/2002	Peter Magnus Petersson	2380-592	7687

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EXAMINER	
NGUYEN, THUAN T	

ART UNIT	PAPER NUMBER
2618	

MAIL DATE	DELIVERY MODE
07/30/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/091,596	PETERSSON ET AL.	
	Examiner	Art Unit	
	THUAN T. NGUYEN	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6, 9, 17-26, 29-33, 35-37* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *1-6, 9, 24-26, 29-33, 35, 37* is/are allowed.

6)☒ Claim(s) *17-23 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Remark

1. Claims 7-8, 10-16, 27-28, and 34 have been previously canceled. Pending claims are claims 1-6, 9, 17-26, 29-33, and 35-37.

Allowable Subject Matter

2. Claims 1-6, 9, 24-26, 29-33, 35, and 37 have been allowed.

3. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record to Schick and Hoenninger, III either alone or combine fail to teach or suggest each and every feature of the present invention as claimed in claims 1, 24 and 30 (refer to Applicant's remarks on 04/30/2007).

Response to Arguments

4. Applicant's arguments with respect to claims 17-23 and 36 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> *A person shall be entitled to a patent unless --*
> *(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

6. Claims 17-23 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Schick et al. (U.S. Patent No. 5,970,053).

Regarding claim 17, Schick teaches an apparatus "comprising: a mixer for mixing a received signal and a local oscillator signal for generating an analog, frequency-converted signal, and an analog-to-digital converter for converting the analog, frequency-converted signal into a corresponding digital signal wherein the analog, frequency-converted signal is connected directly to an input of the analog-to-digital converter" (Fig. 1/item 208 and col. 10/lines 1-50 for a frequency divider in changing the frequency and under the control of LO 170 in providing the local oscillator signal 196 –an analog and frequency converted signal -- and a sampling rate signal to the analog-to-digital converter ADC 192, and ADC provides digital signal to DSP 244; in other words, the analog frequency-converted signal is connected directly to an input of the analog-to-digital converter – exactly same as Fig. 2 of the present application).

As for claim 18, Schick teaches "wherein a frequency of the local oscillator signal is an integer multiple of half of a sampling rate of the analog-to-digital converter, i.e., this is from the Nyquist theorem principal as the minimum sampling rate should be at least twice that of the highest frequency component of the signal being sampled to avoid aliasing (col. 6/lines 52-67 and col. 10/lines 1-26 for examples of the frequency of the local oscillator signal is an integer multiple of half of a sampling rate of the analog-to-digital converter, see equation 7 as F fund (fundamental or reference frequency) considering for Frequency from the LO is 6 MHz (half of the sampling rate), while F sync for sampling rate is 12 MHz (twice) with I/J is a coefficient for integers).

For claims 19 and 20, Schick discloses "wherein the frequency of the local oscillator signal is an integer multiple of half of the sampling rate of the analog-to-digital converter" (refer to claim 1 above) and wherein the frequency of the local oscillator signal *FLO* is $F_w = n * FAD_c / 2$, where FAD_c is the sampling rate of the analog-to-digital converter, and n is a positive integer, i.e., this is from the Nyquist theorem principal as the minimum sampling rate should be at least TWICE that of the highest frequency component of the signal being sampled to avoid aliasing (col. 6/lines 52-67 and col. 10/lines 1-26 for examples of the frequency of the local oscillator signal is an integer multiple of half of a sampling rate of the analog-to-digital converter, see equation 7 as F fund (fundamental or reference frequency) considering for Frequency from the LO is 6 MHz (half of the sampling rate), while F sync for sampling rate is 12 MHz (twice) with I/J is a coefficient for integers).

For claim 21, Schick further discloses "comprising: an oscillator for generating a periodic signal, wherein the periodic signal is used to generate both the local oscillator signal and a sampling rate signal for the analog-to-digital converter" (Fig. 1, item 170, and col. 6/line 52 to col. 7/line 54 for LO 170 and corresponding PLL in providing S LO, S RF and S IF , or other words, LO in generating the periodic signal is used to generate both the local oscillator signal and a sampling rate signal for the analog-to-digital converter ADC 192).

For claim 22, Schick discloses "wherein the frequency changer includes a first frequency divider for dividing the periodic signal in half to generate the local oscillator signal and for dividing the periodic signal by an integer to generate the sampling rate signal of the analog-to-digital converter" (Fig. 8 for a frequency divider circuit, and claim 17 above again for

dividing the periodic signal in half to generate the local oscillator signal and for dividing the periodic signal by an integer to generate the sampling rate as explained above).

For claim 23, Schick teaches "wherein a low impedance output of the mixer is coupled directly to the analog-to-digital converter without an impedance matching network" (Fig. 1 and refer back to claim 17, without an impedance matching network).

For claim 36, Schick further discloses "comprising: an antenna; a front end for processing a radio frequency signal received via the antenna" (program source signals received from an antenna, col. 4/lines 58-61); and "digital processing circuitry for processing the digital signal" (col. 3/lines 50-62 for DSP or digital signal processing is included).

Conclusion

7. **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to the New Central Fax number:

(571) 273-8300, (for Technology Center 2600 only)

Hand deliveries must be made to Customer Service Window,

Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tony Thuan Nguyen whose telephone number is (571) 272-7895. The examiner can normally be reached on Monday-Friday from 10:00 AM to 7:00 PM.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tony T. Nguyen
Primary Examiner
Art Unit 2618

TTN
July 17, 2007